

REMARKS

In accordance with the foregoing, claims 2, 4, 5, 8-12, 15 and 16 are canceled.

Accordingly, claims 1, 3, 6, 7, 13, 14, and 17-22 are pending herein. Of these claims, claims 13 and 19 are amended primarily to improve form and for proper antecedent support.

No new matter is presented and, accordingly, approval and entry of the foregoing claim amendments are respectfully requested.

ITEM 3 AT PAGES 2-4: REJECTION OF ALL PENDING CLAIMS BASED ON THE ART AND REJECTIONS OF RECORD

The claim rejections, all under 35 USC § 103, are identical to those of the prior Office Action.

Accordingly, in traverse of these identically asserted rejections, Applicant incorporates herein by reference and relies upon the response filed July 23, 2003 and the relevant portions of the response filed April 14, 2003, as referenced above.

ITEM 4 AT PAGE 5: EXAMINER'S RESPONSE TO AMENDMENT

Takamori Reference

The Examiner asserts:

Applicant argued that the Takamori reference teaches monitoring "spreading state" and not surface area.

The Examiner disagrees. Takamori teaches monitoring the spreading of the coating which includes the surface area.

Applicants disagree with the Examiner's interpretation of the teaching of the Takamori reference, for the reasons asserted in the intervening response--and for the following, additional reasons.

Takamori teaches, at page 9, lines 44-59, that in the embodiments of Figs. 5 and 6:

...[T]he spreading state of the outline of the outer periphery of the resist solution R is detected by the detecting sensor 105 such as a CCD camera or the like and the detected information is input to the unit controller 110. The unit controller 110 calculates the

spreading speed of the outline of the outer periphery of the resist solution R from the detected information and discriminates whether or not the spreading speed of the outline is not more than a predetermined speed with no danger of producing a scratchpad. If the spreading speed of the outline exceeds the predetermined speed, a control signal is output from the unit controller 110....

(Emphasis added)

Clearly, calculating the "spreading speed of the outline" and determining when the same "exceeds a predetermined speed" is unrelated to, and does not include, measuring "surface area."

The further embodiment of Figs. 7 and 8 detects and measures a scratch pad S:

...[W]hen a scratchpad S is detected by the detecting sensor 105, the unit controller 110 measures a width d in the direction of the radius of the scratchpad S from the detected information, and the rotation speed of the wafer W or the amount or the speed of the resist solution discharged from the resist solution supply nozzle 86 is controlled so that the width of the scratchpad S becomes not so large as to exert influence upon application of the resist solution as described later.

(Emphasis added)

In this instance, rather than the "spreading speed of the outline of the other periphery of the resist solution R", the system measures the "width d in the direction of the radius of the scratchpad S..." based on which suitable controls are undertaken. Clearly, the value of the measured "width d" of the scratchpad S and the determination that it is "not so large as to exert influence...." is unrelated to "determining a surface area of the spread and image resin" as recited in claim 1.

Note, moreover, that in this embodiment, no measurement is performed until the scratchpad S is detected, and only thereafter is the width d of the scratchpad measured.

The further embodiment of Figs. 9 and 10 functions:

[I]n the same way as in the aforesaid embodiment, when a scratchpad S is detected by the detecting sensor 105, the unit controller 110 measures a width d in the direction of the radius of the scratchpad S based on the detected information, and the rotation speed of the wafer W or the amount or the speed or the resist solution discharged from the resist solution supply nozzle 86 is controlled so that the width of the scratchpad S becomes not so large as to exert influence upon application of the resist

solution as described later.

(Emphasis added)

This embodiment further supplies a thinner to the resin supply in addition to regulating speed of rotation or speed or amount of resin being supplied, "to avoid the formation of a scratchpad S of a width which is sufficiently large to exert an influence...." Nevertheless, the detection function is identical to that of Figs. 7 and 8.

Yet another embodiment, discussed at col. 12, lines 48 - col. 13, line 12, is likewise said to be "the same as that shown in Fig. 7." (Col. 12, lines 50-51) In this instance, protruding portions P "which protrude from a scratchpad S formed by breaking the outline of the outer periphery of the resist solution diffusing on the wafer W as shown in Fig. 11" (col. 12, lines 55-58) must be not more than a predetermined amount." In this instance, the adjustments are made so that the protruding portions disappear by the continued dispersion of the resin. (Col. 13, lines 8-12)

Accordingly, Takamori discloses: a) detecting the outline of the outer periphery of the solution R and then calculating the "spreading speed of the outline" and discriminating whether or not it exceeds a "predetermined speed..." or b) detecting a scratchpad S and, in response thereto, measuring a width "d" in the direction of the radius of the scratchpad S "based on the detected information" and implementing appropriate controls "so that the width of the scratchpad S becomes not so large as to exert influence...."

All of these alternatives of Takamori "teach away" from the Examiner's erroneous contention that Takamori monitors "surface area."

Nakasu Reference

The Examiner further asserts at page 5 of the Action as to Nakasu:

Applicant argued that Nakasu teaches monitoring the presence of a drop and not the external appearance.

The Examiner disagrees. Nakasu monitoring of the drop would be inclusive of measuring the "appearance" contrary to Applicant's arguments.

The Examiner clearly errs, for reasons set forth in the intervening response, incorporated herein by reference--and for the following, additional reasons.

Nakasu discloses at col. 8, lines 17-26:

The bump forming apparatus shown in Fig. 1 further comprises a sensor 25 detecting presence/absence of dropping of the fused solder 1 from the first opening 7. The fused solder 1 is discharged from the first opening 7 at a high speed of 1 m/s to 5 m/s, and hence a hold circuit (not shown) holding an output signal from the sensor 25 for a constant time is preferably provided for detecting presence/absence of dropping of the fused solder 1 from the first opening 7 through a hold signal output from the hold circuit.

(Col. 8, lines 17-26)

While other embodiments are disclosed, no further detection function or device, beyond that afforded by detector 25, is addressed.

Clearly, Nakasu does not function for "determining a surface area of the spread and image resin." Indeed, Nakasu does not even relate to the function of "spreading said resin..." as a prelude to the function of "determining a surface area of the spread and imaged resin" as recited in claim 1. Instead, Nakasu teaches only "detecting presence/absence of dropping of the fused solder...."

INDEPENDENT CLAIMS 6 AND 7

The rejections of these claims were addressed in the prior response; as noted above, they are based upon the Takamori reference, as a primary reference, in combination with others, as listed above. Thus, those rejections are likewise deficient.

LACK OF *PRIMA FACIE* BASIS FOR THE COMBINATIONS OF REFERENCES RELIED UPON IN THE REJECTION OF CLAIMS HEREIN

In item 3, the rejection of claim 1 on the combination of Takamori and Konishi et al. acknowledges that Takamori discloses a process for coating a wafer whereas Konishi et al. discloses a process to form a coating on "a circular substrate" which is a "semiconductor wafer." The Examiner then surmises that Konishi is "not limited as such and can include other substrates such as printed boards." On that basis and without regard to the respective, different processes of the two references for forming their respective coatings, the Examiner asserts:

Therefore, it would have been obvious at the time the invention was made for one skilled in the art to have had a reasonable

expectation of achieving similar success with coating a printed wiring board by the process of Takamori...instead of a wafer as evidenced by Konishi et al.

The rejection of claim 3 at page 3 over the combination of Takamori and Kenosha admits that the combination fails to teach the "measuring" device of a fluorescent type to which claim 3 is directed, but then surmises:

It is the Examiner's position that the use of fluorescents is common place in the art of "measuring/monitoring" a coating and hence it would have been within the skill of one practiced in the art...(etc.).

In like fashion, the combination of Takamori and Konishi is acknowledged to fail to teach a feature of claims 6 and 7 which the Examiner then asserts is disclosed by Nakasu et al.--and then relies on the unsubstantiated contention, as before:

Therefore, it would have been obvious for one skilled in the art at the time the invention is made to have modified Takamori in combination with Konishi et al....by incorporating...[the device]...as evidenced by Nakasu with the expectation of achieving similar results....

...[I]t is the Examiner's position that these differences are conventional in the art as well as being common place.

Claims 13-24 are rejected at page 4 over the combination of five different references which, again, the Examiner asserts "would have been obvious at the time the invention was made..." to have modified one in view of the other "with the expectation of achieving similar results."

(Emphasis added throughout)

Advancing a proposed combination of references in reliance on "basic knowledge" or "common sense" has been rejected by the Federal Circuit as affording "no evidentiary support", In re Zurko, 258 F3d 1379, 59 USPQ2d 1693 (Fed. Cir. 2001), and which holding has been rigorously endorsed by the PTO in accordance with the Memorandum of Stephen G. Kunin of February 21, 2002: "Procedures For Relying On Facts Which Are Not Of Record As Common Knowledge Or For Taking Official Action." (Hereinafter, "Kunin Memorandum", copy attached) The "lack of substantial evidence" (see Kunin Memorandum, page 1) is evident in the above quoted statements at page 2-5 of the Action, listed above.

Clearly, the Examiner is merely advancing unsupported contentions based on alleged "common sense" and without evidentiary support--which the Kunin Memorandum unqualifiedly rejects as inadequate.

CONCLUSION

In accordance with the foregoing, it is respectfully submitted that the prior art combinations relied upon are defective and incapable of supporting rejections of the pending claims and accordingly that the pending claims patentably distinguish over the references of record, taken singly or in any proper combination and, there being no other objections or rejections, that the application is in condition for allowance, which action is earnestly solicited.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: February 3, 2004

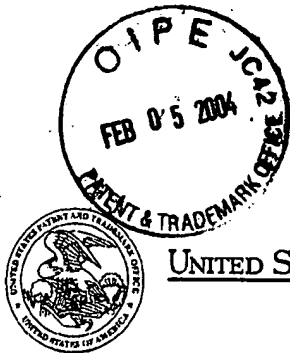
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CERTIFICATE UNDER 37 CFR 1.8(a)
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Date: February 21, 2002

To: Patent Examining Corps
Technology Center Directors

From: Stephen G. Kunin
Deputy Commissioner for Patent Examination Policy

Subject: Procedures for Relying on Facts Which are Not of Record as
Common Knowledge or for Taking Official Notice

This memorandum clarifies the circumstances in which it is appropriate to take official notice of facts not in the record or to rely on "common knowledge" in making a rejection.

Recent court decisions have affected the Office's practice of taking official notice of facts by relying on common knowledge in the art without a reference. Specifically, the Supreme Court recently changed the standard of review applied to decisions of the Board of Patent Appeals and Interferences and the Trademark Trial and Appeal Board on appeal to the U.S. Court of Appeals for the Federal Circuit. *Dickinson v. Zurko*, 527 U.S. 150, 50 USPQ2d 1930 (1999). As a result, the Federal Circuit now reviews findings of fact under the "substantial evidence" standard under the Administrative Procedure Act (APA), rather than the former "clearly erroneous" standard. *In re Gartside*, 203 F.3d 1305, 1315, 53 USPQ2d 1769, 1775 (Fed. Cir. 2000).¹ This change in the review standard has affected the Federal Circuit's view of when the court or the USPTO may take notice of facts without specific documentary evidence support.²

On remand from the Supreme Court, the Federal Circuit in *In re Zurko*, 258 F.3d 1379, 59 USPQ2d 1693 (Fed. Cir. 2001), reversed the Board's decision upholding a rejection under 35 U.S.C. 103 for lack of substantial evidence. Specifically, in *Zurko* and other recent decisions, the court criticized the USPTO's reliance on "basic knowledge" or "common sense" to support an obviousness rejection, where there was no evidentiary support in the record for such a finding.³ In light of the recent Federal Circuit decisions and the substantial evidence standard of review now applied to USPTO Board decisions, the following guidance is provided in order to assist the examiners in determining when it is appropriate to take official notice of facts without

supporting documentary evidence or to rely on common knowledge in the art in making a rejection, and if such official notice is taken, what evidence is necessary to support the examiner's conclusion of common knowledge in the art.

(1) Determine when it is appropriate to take official notice without documentary evidence to support the examiner's conclusion.

Official notice without documentary evidence to support an examiner's conclusion is permissible only in some circumstances. While "official notice" may be relied on, as noted in MPEP § 2144.03, these circumstances should be rare when an application is under final rejection or action under 37 CFR 1.113. Official notice unsupported by documentary evidence should only be taken by the examiner where the facts asserted to be well-known, or to be common knowledge in the art are capable of instant and unquestionable demonstration as being well-known.⁴ In appropriate circumstances, it might not be unreasonable to take official notice of the fact that it is desirable to make something faster, cheaper, better, or stronger without the specific support of documentary evidence. Furthermore, it might not be unreasonable for the examiner in a first Office action to take official notice of facts by asserting that certain limitations in a dependent claim are old and well known expedients in the art without the support of documentary evidence provided the facts so noticed are of notorious character and serve only to "fill in the gaps" which might exist in the evidentiary showing made by the examiner to support a particular ground of rejection.⁵

It would not be appropriate for the examiner to take official notice of facts without citing a prior art reference where the facts asserted to be well known are not capable of instant and unquestionable demonstration as being well-known. For example, assertions of technical facts in the areas of esoteric technology or specific knowledge of the prior art must always be supported by citation to some reference work recognized as standard in the pertinent art.⁶

It is never appropriate to rely solely on "common knowledge" in the art without evidentiary support in the record, as the principal evidence upon which a rejection was based.⁷ As the court held in *Zurko*, an assessment of basic knowledge and common sense that is not based on any evidence in the record lacks substantial evidence support.⁸

(2) If official notice is taken of a fact, unsupported by documentary evidence, the technical line of reasoning underlying a decision to take such notice must be clear and unmistakable.

Ordinarily, there must be some form of evidence in the record to support an assertion of common knowledge.⁹ In certain older cases, official notice has been taken of a fact that is asserted to be "common knowledge" without specific reliance on documentary evidence where the fact noticed was readily verifiable, such as when other references of record supported the noticed fact, or where there

was nothing of record to contradict it.¹⁰ If such notice is taken, the basis for such reasoning must be set forth explicitly. The examiner must provide specific factual findings predicated on sound technical and scientific reasoning to support his or her conclusion of common knowledge.¹¹ The applicant should be presented with the explicit basis on which the examiner regards the matter as subject to official notice and be allowed to challenge the assertion in the next reply after the Office action in which the common knowledge statement was made.

(3) If applicant challenges a factual assertion as not properly officially noticed or not properly based upon common knowledge, the examiner must support the finding with adequate evidence.

To adequately traverse such a finding, an applicant must specifically point out the supposed errors in the examiner's action, which would include stating why the noticed fact is not considered to be common knowledge or well-known in the art.¹² A general allegation that the claims define a patentable invention without any reference to the examiner's assertion of official notice would be inadequate. If applicant adequately traverses the examiner's assertion of official notice, the examiner must provide documentary evidence in the next Office action if the rejection is to be maintained.¹³ If the examiner is relying on personal knowledge to support the finding of what is known in the art, the examiner must provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding. See 37 CFR 1.104(d)(2).

If applicant does not traverse the examiner's assertion of official notice or applicant's traverse is not adequate, the examiner should clearly indicate in the next Office action that the common knowledge or well-known in the art statement is taken to be admitted prior art because applicant either failed to traverse the examiner's assertion of official notice or that the traverse was inadequate. If the traverse was inadequate, the examiner should include an explanation as to why it was inadequate.

(4) Determine whether the next Office action should be made final.

If the examiner adds a reference in the next Office action after applicant's rebuttal, and the newly cited reference is added only as directly corresponding evidence to support the prior common knowledge finding, and it does not result in a new issue or constitute a new ground of rejection, the Office action may be made final. If no amendments are made to the claims, the examiner must not rely on any other teachings in the reference if the rejection is made final. If the newly cited reference is added for reasons other than to support the prior common knowledge statement and a new ground of rejection is introduced by the examiner that is not necessitated by applicant's amendment of the claims, the rejection may not be made final. See MPEP § 706.07(a).

(5) Summary.

Any rejection based on assertions that a fact is well-known or is common knowledge in the art without documentary evidence to support the examiner's conclusion should be judiciously applied. Furthermore, as noted by the court in *Ahlert*, any facts so noticed should be of notorious character and serve only to "fill in the gaps" in an insubstantial manner which might exist in the evidentiary showing made by the examiner to support a particular ground for rejection. It is never appropriate to rely solely on common knowledge in the art without evidentiary support in the record as the principal evidence upon which a rejection was based.¹⁴

MPEP § 2144.03 will be revised accordingly in the upcoming revision to be consistent with this memo.

Cc: Nicholas Godici
Esther Kepplinger
Kay Kim
David Lacey

¹ The Supreme Court has described substantial evidence review in the following manner:

Substantial evidence is more than a mere scintilla. It means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion...Mere uncorroborated hearsay or rumor does not constitute substantial evidence.

Consolidated Edison Co. v. NLRB, 305 U.S. 197, 229-30 (1938)(quoted in *Gartside*, 203 F.3d at 1312, 53 USPQ2d at 1773). "'Substantial evidence' review involves examination of the record as a whole, taking into account evidence that both justifies and detracts from an agency's decision." *Gartside*, 203 F.3d at 1312, 53 USPQ2d at 1773 (citing *Universal Camera Corp. v. NLRB*, 340 U.S. 474, 487-88 (1951)). Furthermore, the Supreme Court has also recognized that "the possibility of drawing two inconsistent conclusions from the evidence does not prevent an administrative agency's finding from being supported by substantial evidence." *Consolo v. Federal Maritime Comm'n*, 383 U.S. 607, 620 (1966) (quoted in *Gartside*, 203 F.3d at 1312, 53 USPQ2d at 1773).

² See *Packard Press, Inc. v. Hewlett-Packard Co.*, 227 F.3d 1352, 1360, 56 USPQ2d 1351, 1356 (Fed. Cir. 2000) (questioning authority to take judicial notice for the first time on appeal in light of the APA standard of review established by *Dickinson v. Zurko*, 527 U.S. at 165, 50 USPQ2d at 1937). Although the substantial evidence standard is deferential to the agency's decision, it imposes certain evidentiary requirements that must be met by the agency in formulating a decision. The Federal Circuit explained that "[i]n appeals from the Board, we have before us a comprehensive record that contains the arguments and evidence presented by the parties, including all of the relevant information upon which the board relied in rendering its decision." *Gartside*, 203 F.3d at 1314, 53 USPQ2d at 1774. Furthermore, the record is "closed, in that the Board's decision must be justified within the four corners of that record." *Id.* Thus, the record before the USPTO "dictates the parameters of review" available to the court. *Id.* Accordingly, "the Board's opinion must explicate its factual conclusions, enabling [the court] to verify readily whether those conclusions are indeed supported by 'substantial evidence' contained within the record." *Id.* (citing *Gechter v. Davidson*, 116 F.3d 1454, 1460, 43 USPQ2d 1030, 1035 (Fed. Cir. 1997)).

³ *Zurko*, 258 F.3d at 1385, 59 USPQ2d 1697 ("the Board cannot simply reach conclusion based on its own understanding or experience—or on its assessment of what would be basic knowledge or common sense. Rather, the Board must point to some concrete evidence in the record in support of these findings."). See also *In re Lee*, ___ F.3d ___, ___, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002) (The Board determined that it was not necessary to present a source of a teaching, suggestion, or motivation to combine the references

because the conclusion of obviousness may be made from common knowledge and common sense of a person of ordinary skill in the art. The court reversed the Board's decision in sustaining a rejection under 35 U.S.C. 103 and stated that "'common knowledge and common sense' on which the Board relied in rejecting Lee's application are not the specialized knowledge and expertise contemplated by the Administrative Procedure Act. Conclusory statements such as those here provided do not fulfill the agency's obligation...The board cannot rely on conclusory statements when dealing with particular combinations of prior art and specific claims, but must set forth the rationale on which it relies").

⁴ As noted by the court in *In re Ahlert*, 424 F.2d 1088, 1091, 165 USPQ 418, 420 (CCPA 1970), the notice of facts beyond the record which may be taken by the examiner must be "capable of such instant and unquestionable demonstration as to defy dispute" (citing *In re Knapp Monarch Co.*, 296 F.2d 230, 132 USPQ 6 (CCPA 1961)). In *Ahlert*, the court held that the Board properly took judicial notice that "it is old to adjust intensity of a flame in accordance with the heat requirement." See also *In re Fox*, 471, F.2d 1405, 1407, 176 USPQ 340, 341 (CCPA 1973) (the court took "judicial notice of the fact that tape recorders commonly erase tape automatically when new 'audio information' is recorded on a tape which already has a recording on it").

⁵ *Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697; *In re Ahlert*, 424 F.2d at 1092, 165 USPQ at 421.

⁶ *In re Ahlert*, 424 F.2d at 1091, 165 USPQ at 420-21. See also *In re Grose*, 592 F.2d 1161, 1167-68, 201 USPQ 57, 63 (CCPA 1979) ("[w]hen the PTO seeks to rely upon a chemical theory, in establishing a prima facie case of obviousness, it must provide evidentiary support for the existence and meaning of that theory."); *In re Eynde*, 480 F.2d 1364, 1370, 178 USPQ 470, 474 (CCPA 1973) ("we reject the notion that judicial or administrative notice may be taken of the state of the art. The facts constituting the state of the art are normally subject to the possibility of rational disagreement among reasonable men and are not amenable to the taking of such notice.").

⁷ *Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697. While the court explained that, "as an administrative tribunal the Board clearly has expertise in the subject matter over which it exercises jurisdiction," it made clear that such "expertise may provide sufficient support for conclusions [only] as to peripheral issue." *Id.* at 1385-86, 59 USPQ2d at 1697.

⁸ *Zurko*, 258 F.3d at 1385, 59 USPQ2d at 1697. See also *In re Lee*, ___ F.3d at ___, 61 USPQ2d at 1435.

⁹ See *In re Lee*, ___ F.3d at ___, 61 USPQ2d 1434-35; *In re Zurko*, 258 F.3d at 1386, 59 USPQ2d at 1697 (holding that general conclusions concerning what is "basic knowledge" or "common sense" to one of ordinary skill in the art without specific factual findings and some concrete evidence in the record to support these findings will not support an obviousness rejection).

¹⁰ See *In re Soli*, 317 F.2d 941, 945-46, 137 USPQ 797, 800 (CCPA 1963) (the court accepted the examiner's assertion that the use of "a control is standard procedure throughout the entire field of bacteriology" because it was readily verifiable and disclosed in references of record not cited by the Office); *In re Chevenard*, 139 F.2d 711, 713, 60 USPQ 239, 241 (CCPA 1943) (accepting examiner's finding that a brief heating at a higher temperature was the equivalent of a longer heating at a lower temperature where there was nothing in the record to indicate the contrary and where the applicant never demanded that the examiner produce evidence to support his statement).

¹¹ See *Soli*, 317 F.2d at 946, 37 USPQ at 801; *Chevenard*, 139 F.2d at 713, 60 USPQ at 241.

¹² See 37 CFR 1.111(b). See also *Chevenard*, 139 F.2d at 713, 60 USPQ at 241 ("[I]n the absence of any demand by appellant for the examiner to produce authority for his statement, we will not consider this contention.").

¹³ See 37 CFR 1.104(c)(2). See also *Zurko*, 258 F.3d at 1386, 59 USPQ2d at 1697 ("the Board [or examiner] must point to some concrete evidence in the record in support of these findings" to satisfy the substantial evidence test).

¹⁴ See *Zurko*, 258 F.3d at 1386, 59 USPQ2d at 1697; *Ahlert*, 424 F.2d at 1092, 165 USPQ 421.